

A NEW CHAETOGNATH GENUS AND SPECIES, WITH REMARKS ON THE TAXONOMY AND DISTRIBUTION OF OTHERS¹

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ABSTRACT

Plankton collections from deep waters in the Caribbean Sea and the Gulf of Mexico contain noteworthy bathypelagic chaetognaths. A new genus, *Bathybelos*, and its type-species, *Bathybelos typhlops*, are described. The occurrence of deeply serrated hooks in young specimens of *Eukrohnia bathyantartica* David, *E. bathypelagica* Alvaríño, and *E. proboscidea* Furnestín & Ducret is reported. *Eukrohnia bathypelagica* is recorded for the first time from the Gulf of Mexico and the Caribbean Sea and *E. proboscidea*, from the Caribbean.

Spadella hummelincki Alvaríño, 1970, is put in synonymy to *Spadella pulchella* Owre, 1963. The validity of *Krohnitta mutabbii* Alvaríño, 1969, is discussed.

INTRODUCTION

The phylum Chaetognatha was considered a fairly static group taxonomically at the time of Tokioka's review in 1952, which contained conservative lists of 42 valid and 11 doubtful species in nine genera. In his 1965 revision, Tokioka acknowledged the validity of six more and reported the description of 15 new species, making a total of 63 species. Since then at least six more have been named: *Eukrohnia proboscidea* Furnestín & Ducret, 1965, *E. minuta* Silas & Srinivasan, 1969, *Krohnitta mutabbii* Alvaríño, 1969, *Sagitta megalopthalma* Dallot & Ducret, 1969, *S. galerita* Dallot, 1971, and *Spadella hummelincki* Alvaríño, 1970.

Although no new genera have been reported since Tokioka erected *Bathyspadella* in 1939, the discovery of undescribed forms, even in such a homogeneous group as the Chaetognatha, can be expected with the expansion of interest in coastal waters around the world and in the deep sea, and with ever-improving sampling methods. *Bathyspadella edentata* Tokioka, 1939b, described from one specimen, has not been found again, nor have the monospecific *Krohnitella boureei* Germain & Joubin, 1912 (two specimens) and *Zahonya cestoda* Oye, 1918 (one specimen). The latter two are generally not accepted as valid. Of the two remaining monospecific genera, the deep-living *Heterokrohnia* (*H. mirabilis* Ritter-Záhony, 1911) has been reported several times (David, 1963) and *Pterosagitta*

¹ Contribution No. 1706 from the University of Miami, Rosenstiel School of Marine and Atmospheric Science. This study was supported by ONR Contract N 0014-67-A-0201-0013.

draco (Krohn, 1853) is cosmopolitan in warm-temperate oceans. Thus almost all pelagic species are classified in the genera *Sagitta* Quoy & Gaimard, 1827, *Eukrohnia* Ritter-Záhony, 1909, and *Krohnitta* Ritter-Záhony, 1910. *Spadella* Langerhans, 1880, remains the only genus of benthic forms.

It was of especial interest, therefore, to find a form different from these genera. Several features encouraged description, even though only one specimen is known. Caught in an opening-and-closing net at 2500 m, it was in nearly perfect condition. Like *Eukrohnia*, it lacks anterior teeth. Like *Sagitta*, it has two pairs of lateral fins, both of which, however, completely lack supporting rays. Of particular significance are the advanced state of ovarian development and the presence of either immature or spent seminal vesicles. It was collected from the basin of the Gulf of Mexico, an isolated area in which bathyplankton is poorly known and where endemism may develop.

Comments will also be made on the validity of two recently described species and on the presence of serrated hooks in young *Eukrohnia bathyantarctica*, *E. bathypelagica*, and *E. proboscidea*.

All pelagic specimens were collected on cruises in the Caribbean Sea and the Gulf of Mexico made with the support of NSF Grants GB-3808, GB-5776, GB-7082, GA-4569, GB-5625, and GB-13113. I am indebted to the Office of Naval Research, under the auspices of which this study was made. The illustrations were prepared by Mrs. Kathy E. Wilson. Techniques of placing and fishing the nets were described by Owre & Low (1969). As the methods used and the 1-hour fishing time were routine, the catches are comparable.

Bathybelos, new genus

Description.—The head, with hood extended, is extremely long and narrow, approximately twice as long as broad, with numerous brown hooks and posterior teeth and no anterior teeth. The body, translucent and weakly muscled in longitudinal bands, bears two pairs of rayless lateral fins and a caudal fin supported proximally by rays. A large rectangular nerve center, the cerebral ganglion, is visible on the dorsal side of the neck; there is no trace of the prominent ventral ganglion found on the trunk of other chaetognaths. Located on the frontal portion of the head, a kite-shaped group of sensory cells protrudes above the surface of the head but not beyond it, as do the so-called frontal "papillae" of *Eukrohnia*.

Type-Species.—*Bathybelos typhlops*, n. sp., here designated.

Bathybelos typhlops, new species

Figs. 1, 2

Description.—The total length, excluding the caudal fin, is 17.2 mm. The tail measures 5.0 mm, which is 29 per cent of the total length. The rayless

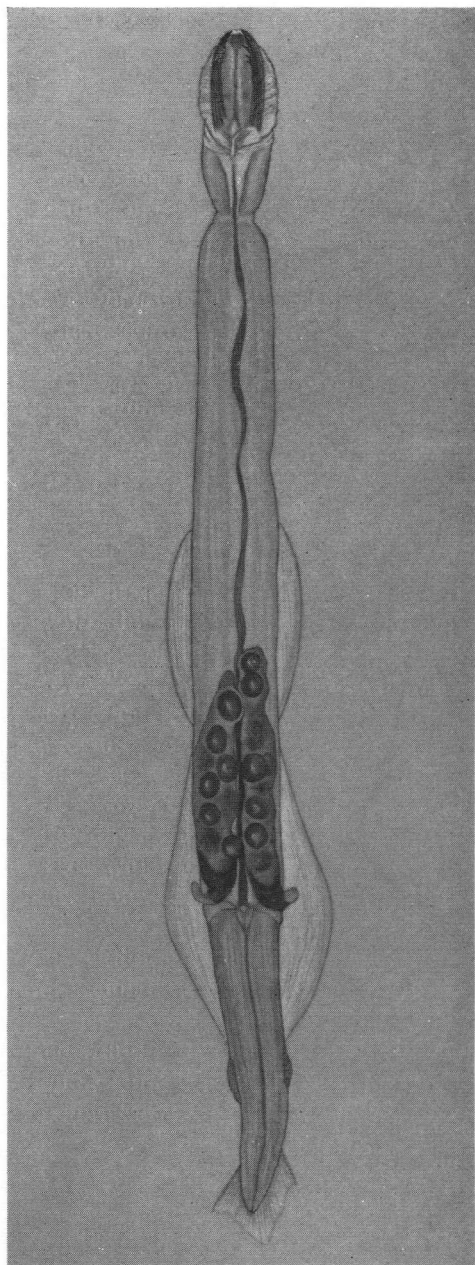


FIGURE 1. *Bathybelos typhlops*, n. sp., dorsal view, $\times 9$.

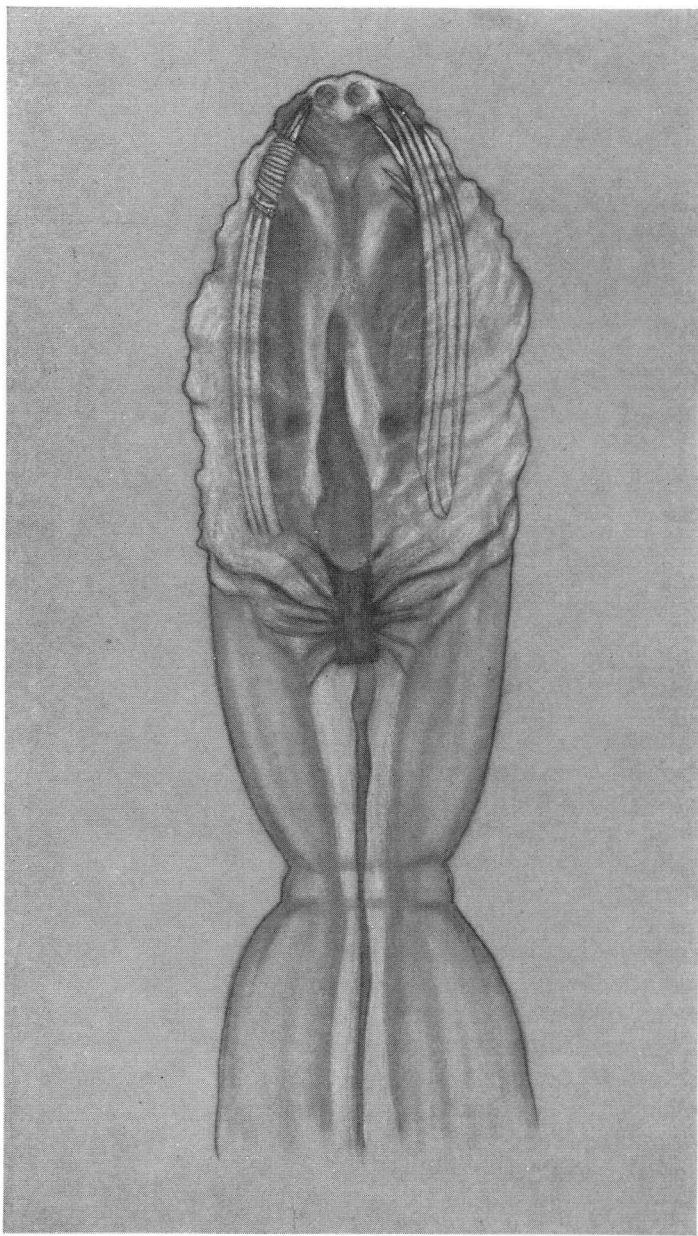


FIGURE 2. *Bathybelos typhlops*, n. sp., head and neck in dorsal view, showing sensory areas and the cerebral ganglion, $\times 40$.

lateral fins are short, evenly rounded, and relatively thick at their bases, thinning toward the periphery. Approximately equal parts of the posterior pair, which are 4.7 mm long, are located on tail and trunk. Thus they are widest at the level of the transverse septum. A small space, about 0.3 mm, separates them from the shorter anterior pair, 3.0 mm long. These terminate about 7 mm from the anterior tip of the head. There is no trace of a collarette or other similar epidermal development. The trunk is markedly constricted about 1 mm posterior to the head. The regularity of the constriction and the absence of evident damage make it impossible to conclude if this feature is real or unnatural, although the latter is more likely.

The dorsal nerve center does not protrude but appears to be imbedded in the body wall below the epidermis (Fig. 2). Staining with a 1 per cent aqueous solution of methylene blue showed two groups of cells on the dorsal side of the head, which presumably are sensory. Although these are located where eyes might have been found, they are not like the unpigmented clusters of specialized cells termed eyes in some species of *Eukrohnia*, e.g., *E. bathyantartica* and *E. bathypelagica*. The animal appears blind. Staining also did not reveal a corona ciliata. At the anterior tip of the head, lying on either side of the midline, is a pair of ovoid bodies which appear to be ganglia connected by a commissure. Extending back from these for about one-fourth the length of the head on the anterior dorsal surface is a broad, kite-shaped group of sensory cells (Fig. 2). Their nuclei stain very darkly with methylene blue. As described earlier, this structure protrudes above the surface of the head but does not extend beyond it as the papillar extensions on the head of *Eukrohnia* do. Laterally a straplike band, probably a nerve trunk, extends on each side through the hood posteriorly to connect with the dorsal nerve center or cerebral ganglion.

The hooks, numbering 9 and 10, are long, brown, and nearly straight, with slightly curved tips. On the left side, 13 very long, slender teeth are set in a line dorsal to the retracted hooks (Fig. 2). It is assumed that the right-hand set was lost during capture; those on the left are loosely attached and could easily be dislodged.

The digestive tube is probably the type designated as simple by Dallot (1970). Staining with methylene blue shows that there are either small vacuolar cells or else small oil drops inside the collapsed tube. There are no diverticulae. The intestinal walls are laterally appressed except for an area containing material just anterior to the anus. The dorsal and ventral mesenteries which support the intestine are visible as straight white lines extending down the dorsal and ventral midlines.

The mature ovaries, each containing approximately 10 ova, extend anteriorly about 4 mm. Their stubby form and the attenuated tip on one side resemble *Eukrohnia* (e.g., *E. bathypelagica* Alvarino, 1962) more than *Sagitta*, *Pterosagitta*, or *Krohnitta*, but there is no evidence of the egg

TABLE 1

HYDROGRAPHIC DATA, STA. 11, P 6803, 26° 00' N, 86° 15' W, 16 APRIL 1968*

Depth (m)	Fishing depth (m)	°C	Salinity (‰)	O ₂ (ml/l)	PO ₄ -P (μg-at/l)
0	0	23.35	36.39	4.71	0.16
19	—	22.50	36.42	5.04	0.16
39	30 (thermo-cline)	20.75	36.41	4.98	0.16
58	—	20.16	36.39	4.94	0.16
68	—	19.10	36.33	3.56	0.60
78	—	18.43	36.28	3.34	0.70
87	—	17.92	36.22	3.98	0.57
97	—	17.59	36.22	3.35	0.79
117	—	16.57	36.05	3.14	0.83
146	—	15.48	35.93	3.37	1.02
195	—	13.73	35.61	3.07	1.28
487	580	7.53	34.80	2.92	2.21
977	1030	4.66	34.81	4.37	1.89
1467	1500	4.23	34.85	4.94	1.75
1958	2000	4.23	34.84	4.97	1.69
2449	2500	4.27	34.84	5.01	1.67

* Depth to bottom was 3169 m. Fishing time was 0836-0946 EST.

pouches Alvariño (1968) reported finding in *E. bathyantartica*. The seminal receptacles are so full of sperm that masses protrude from each aperture (Fig. 1). No development of testes can be seen. The seminal vesicles are either developing or, more likely, spent. They are well separated from the caudal fin but probably are in contact with the posterior lateral fins when mature.

Holotype.—USNM No. 50882, Sta. 11, R/V PILLSBURY Cruise 6803.

Type-Locality.—R/V PILLSBURY Sta. 11, P 6803, 25° 59' N, 86° 11' W in the Gulf of Mexico, at 2500 m on 16 April 1968, 0846-0946 EST.

Remarks.—Data recorded at Sta. 11, P 6803, at 2449 m, near the depth of collection of *Bathobelos typhlops* are: 4.27° C, 34.8‰, 5.01 ml/l O₂ and 1.67 μg-at/l PO₄-P. These figures differ little from those obtained in the overlying 1000 m (Table 1).

Some bathypelagic species (e.g., *Sagitta zetesios* and *Eukrohnia fowleri*) have very obvious vacuolated cells in the intestinal wall or a collarette or both (Dallot, 1970), or large oil droplets in the intestine as in *E. hamata* (Fraser, 1952); this specimen has none of these. The presence of stout rays in the caudal fin and lack of them in the laterals may be a consequence of the use of the former in propulsion. Found in the sample with *B. typhlops* were six specimens of *Pterosagitta draco*, one of *Sagitta hexaptera*, two of *S. lyra*, and one of *S. macrocephala*.

The distinctive form and mature state of the specimen indicate that it is not a defective individual of a known species. Colleagues who have not examined it suggest that it is a deteriorated specimen of *S. macrocephala*, but it differs from that species in many features. The head is longer, narrower, and much smaller in relation to the remainder of the body than that of *S. macrocephala*. The longitudinal musculature is less developed and the form, consequently, is far more fragile. Rays supporting the lateral fins are conspicuous in *S. macrocephala*, even when the soft tissue has been torn; the lateral fins of *B. typhlops* are rayless and entire. Compared with *S. macrocephala* of equivalent length (17 mm, Ritter-Záhony, 1911), its tail is shorter (29 per cent vs. 32-34 per cent), its hooks are fewer (9-10 vs. 11-12), its anterior teeth are missing, and its posterior teeth are far less numerous (13 vs. 26-29). The presence of mature ovaries, containing large, round eggs, and the inseminated receptacles provides evidence that the animal had recently died if it were dead when collected.

Possibly the specimen represents a population long isolated by a lack of circulation in the deep waters of the Gulf of Mexico Basin. On the other hand, the questions of residence time and renewal of the deep waters have not been resolved. In comparing the eastern and western Caribbean basins, Sturges (1965) inferred that the relatively low values of dissolved oxygen in waters of the eastern basins below 2500 m are evidence of long residence without renewal there and sporadic renewal through the Windward Passage in the western basins. Worthington (1971) favored this hypothesis. Compared with values found at similar depths in the Yucatan Basin (5.64 ml/l [Wüst, 1964]; 5.61 ml/l [Nowlin, 1972]), lower values have been recorded in the Gulf Basin at approximately 2500 m (5.01 ml/l [Table 1]; 5.08 ml/l [Pequegnat, 1972]). However, Nowlin (1972) pointed out that Wüst's (1964) values "near 5 ml/l . . ." at about 1500-2000 m in the Yucatan Basin were found "at depths from which waters could enter and fill the Gulf of Mexico Basin."

Eukrohnia bathyantartica David, 1958

Fagetti (1968) and Owre (1972a) reported this species from the Caribbean Sea and the Gulf of Mexico. Now individuals have been found with strongly serrated hooks, a feature not previously reported for the species. Furnestin (1965) reviewed the occurrence of serrated hooks in young individuals of *E. fowleri* and *E. hamata* and made the point that there seems to be no link with geographical distribution. She did not find serrations in either *E. proboscidea* Furnestin & Ducret or *E. bathypelagica* Alvaríño. She had no specimens of *E. bathyantartica*, but she observed that David did not report serrated hooks. David's smallest specimen was 10 mm long.

Fifteen specimens of *E. bathyantartica* were collected at four depths from 580 to 2000 m at Sta. 11, P 6803. The hooks of the largest, 16.5 mm, are smooth on the inner edge. In all the others, 7.5 to 12.0 mm long,

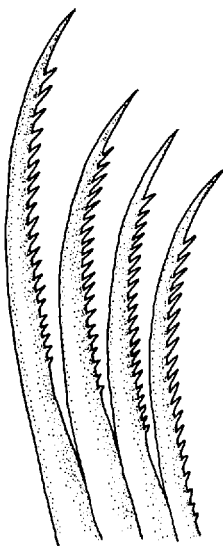


FIGURE 3. Serrated hooks of *Eukrohnia bathyantartica* David, numbers 8 through 11, from left to right, $\times 108$.

three to six of the ventral hooks are deeply serrated (Fig. 3). The number of serrated hooks is higher in the smaller specimens and lower in the larger ones, and also the number of serrations is less in the longer animals, as one would expect, since this is a juvenile characteristic (Table 2).

The vertical distribution of the specimens is given in Table 3. None was collected at 0, 30, and 2500 m. The associated hydrographic data are found in Table 1. Most of the specimens of *E. bathyantartica* and all of those of *E. bathypelagica* were collected at the minimum oxygen and maximum phosphate levels and at the lower levels of temperature and salinity.

Eukrohnia bathypelagica Alvarino 1962

The species was described from specimens collected between 280 and 1280 m in the Pacific Ocean. Ducret (1965) reported it from approxi-

TABLE 2
NUMBER OF SERRATIONS ON THE HOOKS OF *E. bathyantartica*

Length (mm)	Hook number, counting from dorsal to ventral					
	6	7	8	9	10	11
7.5	16	11-18	14-26	6-16	11-12	16
9.0-11.0	—	9-10	20-22	16-23	13-26	21-23
12.0	—	—	—	4-8	10	13

TABLE 3

VERTICAL DISTRIBUTION OF *Eukrohnia bathyantartica* AND *E. bathypelagica*,
WITH ASSOCIATED CHAETOGNATH SPECIES, AT STA. 11, P 6803

Fishing depth (m)	<i>E. bathyantartica</i>		<i>E. bathypelagica</i>		Associates
	No. of specimens	Length (mm)	No. of specimens	Length (mm)	
580	9	9.0-11.0	8	11.0-13.0	<i>Sagitta bipunctata</i> , <i>S. lyra</i> , <i>S. macrocephala</i>
1030	4	10.0-16.5			<i>S. hexaptera</i> , <i>S. macrocephala</i>
1500	1	7.5			<i>S. macrocephala</i>
2000	1	10.0			<i>S. macrocephala</i>

mately 350-1400 m off southwest Africa. It has not previously been recorded from the Caribbean Sea and the Gulf of Mexico. Eight specimens, 11.0 to 13.0 mm long and all immature, were collected at 580 m, Sta. 11, P 6803 (Tables 1, 3). Others, 8.8 to 16.0 mm long, were found at Sta. 7, P 6911 in the Caribbean (15° 01' N, 64° 32' W, 1547-1647 EST, 29 October 1969, bottom depth 3462 m), where samples were collected from the surface to 1300 m. *E. bathypelagica* occurred in those from 539 m (two specimens), 779 m (the three largest, 13-16 mm long; with 14 specimens of *E. bathyantartica*) and 1000 m (17 specimens), in temperatures of 5.10°-8.63° C and salinities of 34.76‰ to 34.91‰, which conditions are similar to those at its locality in the gulf (Tables 1, 3).

The ovaries were mature and the seminal vesicles developing in a 13-mm

TABLE 4

MEASUREMENTS AND COUNTS OF HOOKS AND TEETH OF *E. bathypelagica*

Station	Length (mm)	T%	Hooks	Teeth
P 6803, Sta. 11	11.0	27	10-10	?
	12.0	25	9-8	10-10
	12.5	28	10-10	?
	12.5	24	10-10	8-8
	13.0	27	7-8	11-11
	13.0	27	9-9	11-11
	13.0	27	?	?
	13.0	27	10-10	9-9
P 6911, Sta. 7	13.0	30	10-10	8-9
	14.0	27	8-9	8-8
	16.0	29	9-9	8-8
	8.8	25	9-9	7-7

TABLE 5
MEASUREMENTS AND COUNTS OF HOOKS AND TEETH OF *E. proboscidea*

Station	Location	Depth (m)	Length (mm)	T%	Hooks	Teeth	Ovaries (% T.L.)
P 6811, Sta. 16	20° 23' N, 81° 04' W	750	13.0	23.0	10-10	8-12	—
"	"	"	16.5	21.2	11-11	13-13	—
P 6911, Sta. 3	15° 00' N, 62° 00' W	2072	25.0	20.0	12-12	19-19	—
P 6811, Sta. 12	14° 50' N, 80° 45' W	1100	29.5	25.4	12-13	17-20	6.7

specimen; those 14 and 16 mm long were fully mature. The hooks are sharply curved at the tip, as Alvaríño described, and they are not serrated except in the smallest individual, 8.8 mm long. Its most ventral hook, the ninth, has seven serrations close to the hooked tip. Measurements and counts are given in Table 4.

Eukrohnia proboscidea Furnestin & Ducret, 1965

The species was described from 55 specimens collected at 1000 and 1100 m off southeast Africa. A more detailed description, based on the same material, was provided by Ducret (1965) in her account of five species of *Eukrohnia* which occur in equatorial and tropical African waters. The present report expands its distributional record not only horizontally but also vertically, from 750 to 2072 m.

Only four individuals were found in the Caribbean collections (Table 5). The largest, 4.5 mm longer than the maximum size previously reported, is sexually mature. In the two smaller specimens, the ventral-most hook on each side is serrated with 10-18 small hooks. Other species in the samples were: at 750 m, *Sagitta macrocephala*, *S. zetesios*, *Eukrohnia bathyantarctica*, *E. bathypelagica*, and *E. fowleri*; at 1100 m, *S. hexaptera*, *S. macrocephala*, *E. bathyantarctica*, and *E. bathypelagica*; and at 2072 m, *S. macrocephala*.

Krohnitta pacifica (Aida, 1897)

Krohnia pacifica Aida, 1897.

Eukrohnia pacifica, Michael, 1911.

Krohnitta pacifica, Tokioka, 1939a, 1940, 1942.—Thomson, 1947.—Pierce, 1951, 1953, 1954, 1958, 1962.—Suárez-Caabro, 1955.—Owre, 1960.—

Legaré & Zoppi, 1961.—Alvaríño, 1963, 1965, 1967.

Krohnitta subtilis (partim), Ritter-Záhony, 1910, 1911.

Krohnitta mutabbii Alvaríño, 1969.

In 1963, Alvaríño commented on differences between the Indo-Pacific

and the Atlantic forms of *K. pacifica* on which she later based the description of a new species, *Krohnitta mutabbii* Alvaríño, 1969. Although I have not examined Indo-Pacific specimens of *K. pacifica*, I am familiar with Atlantic forms, and after carefully studying the diagnosis I believe that differences of sufficient magnitude to merit the naming of a new species have not been demonstrated.

The description of *K. mutabbii* contained two comparative statements. One was that the T% in the Atlantic forms is less than in Indo-Pacific *K. pacifica*, but no numbers were given. In the description, Alvaríño gave the maximum length as 7.0 mm and in the accompanying table the figure is 7.5 mm, the maximum recorded, to my knowledge, for Atlantic specimens. Pierce (1951) found that in animals from the Gulf of Mexico measuring 5-7 mm, the T% was 27-30. In Suárez-Caabro's (1955) specimens 4.5-6.0 mm long,² the T% was 30.4-39.8, and Legaré & Zoppi's (1961) records are length² 3.6-5.8 mm, T% 29.3-36.1.

In another paper, Alvaríño (1967) cited the T% as 27-34 in Indo-Pacific specimens 6-8 mm long. Thomson (1947) gave the maximum size-range of specimens off southeastern Australia as 8-9 mm and the maximum T% as 36, but Alvaríño apparently used neither his data nor those of Sund (1959), whose animals ranged from 4.2 to 7.2 mm, with T% of 28.1-37.5. On the basis of all of the measurements cited as well as some of my own, it appears that the character is not a reliable one as measurements are now made.

If these measurements are examined in an effort to discover a relationship, one soon finds that none can be demonstrated in most published data. On the basis of general knowledge of development in chaetognaths, however, the smaller the specimen, the longer the tail should be in proportion. Variable shrinkage is the reason the figures do not show a consistent relationship. Until a uniform method of preservation has been adopted and information accumulated on the long-term effects of preservatives on soft-bodied animals as well as those with exoskeletons, small differences in relative measurements should not be relied upon to separate species. Ahlstrom & Thrailkill (1962) found that samples lose 15-87 per cent of their volume at collection, most of it within the first 24 hours after preservation; comparative stability is reached within 1 to 2 years.

To see if a consistent relationship exists between length and T% in the individuals of one sample, 10 specimens of *K. pacifica* from a Caribbean sample preserved nearly 3 years and six mature specimens from another sample 2½ years old were measured. Both had been preserved in 10 per cent formalin buffered with hexamethylenetetramine. The results show the trend toward less T% in older animals in the first group but not the second, and also the variability of the relationship in smaller animals (Table 6).

² Although these measurements include the caudal fin, the figures for T% are comparable.

TABLE 6
THE RELATIONSHIP BETWEEN LENGTH AND T% IN *Krohnitta pacifica*
FROM THE CARIBBEAN SEA

First group				Second group	
Length (mm)	T%	Length (mm)	T%	Length (mm)	T%
7.0	26	5.9	29	7.1	29
6.7	28	5.7	31	7.0	30
6.5	29	5.5	31	6.6	29
6.5	29	5.0	28	6.2	29
6.0	30	4.7	30	5.9	29
				5.6	31

The other difference cited by Alvaríño to support the new species is that the transverse axis of the seminal vesicles in Atlantic specimens is longer than in the others. As a function of maturity of the seminal vesicles, this dimension is necessarily transitory and thus difficult to apply as a criterion of species. The reader is further referred to a table of characteristics and to illustrations of other morphological differences, none of which shows striking variation except perhaps the amount of support by rays in the lateral fins. Alvaríño's (1963) drawings of *K. pacifica* from the Sea of Cortez compared with an Atlantic specimen show a far more extensive inner rayless zone in the fins of the former. In illustrations of the Atlantic form accompanying the description of the new species a very small area lacking rays, "adjacent to the opening of the oviducts," is depicted. However, a far greater rayless zone was illustrated by both Suárez-Caabro (1955) and Legaré & Zoppi (1961) for Caribbean specimens, although it does not extend as far anteriorly as Alvaríño (1963) showed in Pacific forms. Similarly, in our largest and best specimens, the rayless portion is intermediate in extent between Alvaríño's drawings of the Atlantic and Pacific forms. It extends from a point midway between the seminal vesicle and the transverse septum to the equivalent location between the septum and the anterior edge of the fin. None of the illustrations portray the fragility of this small species, the fins of which are extremely susceptible to abrasion.

Spadella pulchella Owre, 1963

Fig. 4

Spadella pulchella, Tokioka, 1965.

Spadella hummelincki Alvaríño, 1970.

Alvaríño (1970) borrowed the paratypes of *Spadella pulchella* from the National Museum of Natural History and wrote a lengthy comparison of them with the four specimens that Dr. P. W. Hummelinck collected in Puerto Rico in 1963, from which she described *S. hummelincki*. Because

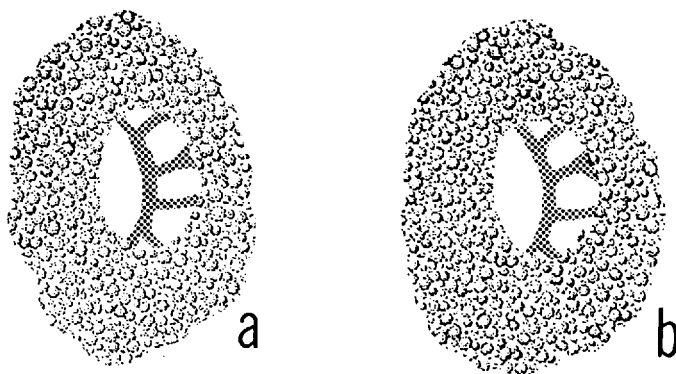


FIGURE 4. a, Left eye of *Spadella pulchella* Owre, $\times 615$, diagrammatic; b, left eye of *S. hummelincki* Alvariño, $\times 615$, diagrammatic.

of the similarity of the two forms and their equivalent type-localities in the vicinity of La Parguera, Puerto Rico, I borrowed the three paratypes of *S. hummelincki* from the Zoölogisch Museum of Amsterdam to compare them with the original as well as new material of *S. pulchella*.

Spadella pulchella was described from ten specimens. Since then, I have had the opportunity to examine many more, collected in the Bahamas (Owre, 1972b). These and the Hummelinck specimens are morphologically identical. The characteristics cited by Alvariño to separate the two are the form of the eyes and the adhesive structures, but they are the same in both. The adhesive structures originate from the posterior edge of the seminal vesicles, are attached laterally and confluent with the caudal fin (as shown in fig. 4a, Owre, 1963). In both description and key in that paper, however, the location of the structure with respect to vesicle and fin is poorly stated. It should have been clearly explained that the structure lies laterally between the two and is attached to both. Alvariño emphasized the "hand-shaped" form of the structure, with its "finger-like" processes. The number and shape of digitations apparently depends on age, as pointed out in the description of *S. pulchella*, and an important feature of the structure is its irregularity in form. Alvariño illustrated three digitations, perhaps from the holotype, but the paratypes have processes irregular in shape and number. Most lack real digitations, a characteristic of many specimens of *S. pulchella*.

Alvariño's illustrations of the eyes do not agree with the form observed both in the paratypes of *S. hummelincki* and the specimens of *S. pulchella*. The left eye of each is shown in Figure 4. They are the same size and the distinctive arrangement of the pigment cups is identical: the broad, curving vertical band bifurcates posteriorly and there are three bands extending

from it toward the midline, all of which are simple except the second from the anterior border, which bifurcates medially.

SUMARIO

NUEVO GÉNERO Y ESPECIE DE QUETOGNATO, CON OBSERVACIONES SOBRE LA TAXONOMÍA Y DISTRIBUCIÓN DE OTROS

Colecciones de plancton procedentes de aguas profundas del Mar Caribe y del Golfo de México contienen quetognatos batipelágicos dignos de ser mencionados. Se describen un nuevo género, *Bathybelos*, y su especie tipo *Bathybelos typhlops*. Se reporta la ocurrencia de garfios profundamente serrados en ejemplares jóvenes de *Eukrohnna bathyantartica* David, *E. bathypelagica* Alvariño y *E. proboscidea* Furnestin & Ducret. *Eukrohnna bathypelagica* es reportada por la primera vez en el Golfo de México y en el Mar Caribe y *E. proboscidea* en el Caribe.

Spadella hummelincki Alvariño, 1970, es puesta en la sinonimia de *Spadella pulchella* Owre, 1963. Se discute la validez de *Krohnitta mutabii* Alvariño, 1969.

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